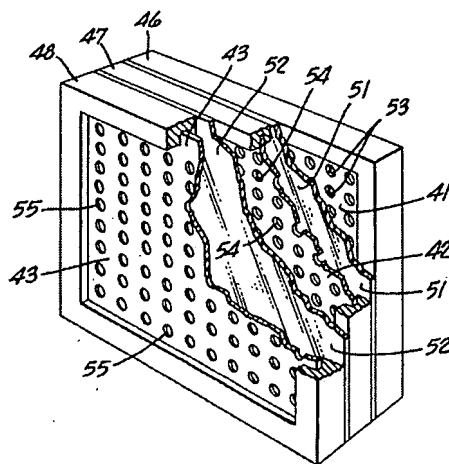


REMARKS

Upon entry of this amendment, claims 1, 2, 4-18, and 20-27 will be at issue. One new dependent claim (claim 26) and one new independent claim (claim 27) have been added, so a check for the required fee is enclosed.

The anticipation rejection of claim 1

The examiner rejected claim 1 as being anticipated by the Brettell patent. That patent discloses a transducer that has a pair of diaphragms (51, 52) interposed between three conductive plates (53, 54, 55) that the patent says are "rigid." (Col. 3, line 44.)

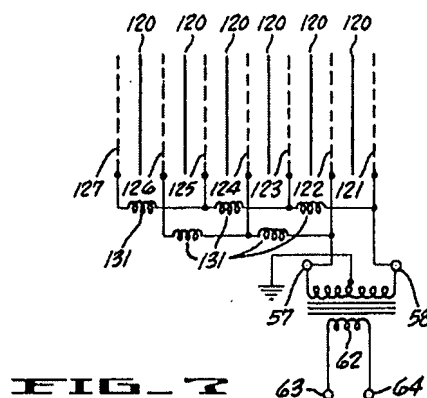


Although the distance between a diaphragm and an adjacent plate may change, the rigidity of the end plates keeps the thickness of the overall transducer constant.

In rejecting claim 1, the examiner construed the Brettell patent as disclosing two transducer elements. However, because each half of the Brettell structure (i.e., the half that extends from rigid plate 55 to rigid plate 54, and the half that extends from rigid plate 54 to rigid plate 53) is bounded by a rigid plate, it appears that neither of these "transducer elements" can change its overall thickness.

Claim 1 recites a device that has “at least two layers such that each transducer element is capable of changing its thickness.” Neither half of the Brettell transducer can be viewed as a transducer element that meets this requirement.

In addition, the Brettell patent only discloses passive filtering of the signal to improve the frequency response. A passive inductive delay line is shown.



In the present invention, on the other hand, at least two transducer elements are separately and dynamically controlled. This dynamic control is described, for example, in paragraph 40 of the specification, where the application explains how a sensor can be used to measure the pressure in one of the air gaps in the transducer (or the current taken by one of the transducer elements) and that input can be used as a feedback signal for one of the transducer elements. This dynamic control of the second transducer element involves more than merely delaying the same signal, as described in the Brettell patent.

To better clarify this distinction, claim 1 has been amended to recite “dynamic control” of each of the transducer elements. Brettell does not teach or suggest a system having such control.

The obviousness rejection of claims 1 and 17

The examiner rejected both claim 1 and claim 17 because he thought that the disclosure in Brettell that driving signals can be delayed to maintain a proper phase relationship would have made it obvious to modify the Bolleman device to include separate control of each transducer element. However, as explained above, the Brettell patent does not appear to disclose or suggest “dynamic control” of each of the transducer elements; instead, all it discloses is delay of the same signal.

Because the Brettell patent does not disclose all the elements recited in claim 1, or the elements of claim 17 not disclosed in the Bolleman patent, the applicant believes that the rejections of claims 1 and 17 can now be withdrawn. The dependent claims can be allowed based on these claims.

New claim 26

New claim 26 depends from claim 1 and recites that the overall thickness of the transducer varies while it is operating. Because the overall thickness of the Brettell device cannot change, it does not read on this claim.

New claim 27

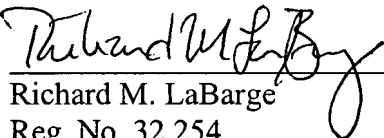
New claim 27 recites, “separately controlling the amplitude and phase of each control signal fed to the transducer elements to produce a desired radiation pattern of sound pressure or vibration, whereby the center of mass of the transducer moves with acceleration corresponding to the control signals and thereby produces a counterforce used in producing the desired radiation pattern.” The cited references do not appear to disclose this element, and the claim is believed to be allowable.

Conclusion

The applicant believes that this amendment puts all claims of the application in form for allowance. Accordingly, the applicant requests a notice of allowance of claims 1, 2, 4-18, and 20-27.

Respectfully submitted,

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